

**Notice of Allowability**

Application No.

10/775,514

Applicant(s)

CHU ET AL.

Examiner

Art Unit

Johannes P. Mondt

3663

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/20/06.
2. ☒ The allowed claim(s) is/are 29,32-41 and 60.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |                                                                                                            |                                                                                       |
|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|                                                                                                            | 9. <input type="checkbox"/> Other _____                                               |



## DETAILED ACTION

### *Response to Amendment*

Amendment filed 7/20 and Declaration filed 7/20/06 form the basis for this office action.

The Declaration under 37 CFR 1.132 filed 7/20/06, while given only moderate weight being inventor's own statement, nevertheless in conjunction with the Remarks filed 7/20/06 with said Amendment is sufficient to overcome the rejection of claim 29,32 and 60 based upon Swanson and Edmund.

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with L. Szivos (Reg. No.: 39,394) on September 25, 2006.

The application has been amended as follows:

**Claims 42-59**, having been withdrawn in an election of species without traverse, have been cancelled.

**Claim 29:**

(a) line 6, "in the range from about 6 A to about" has been replaced by: "up to about".

(b) line 7, the oxygen" has been replaced by: "an oxygen concentration".

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**Claim 32:**

(a) line 4, "in the range from about 6 A to about" has been replaced by: "up to about".

(b) line 4, "the oxygen" has been replaced by: "an oxygen concentration".

**Claim 33:** line 6, "in the range from about 6 A to about" has been replaced by: " up to about.

**Claim 34:**

(a) line 6, "the oxygen" has been replaced by: "an oxygen concentration".

(b) line 6, "in the range from about 6 A to about" has been replaced by: "up to about".

**Claim 35:**

(a) line 2, "said layer of p-type doped SiC" has been replaced by: "said SiC layer with p-type dopant".

(b) line 6, "the oxygen" has been replaced by: "an oxygen concentration".

(c) line 6, "in the range from about 6 A to about" has been replaced by: "up to about".

**Claim 36:**

(a) line 2, "said p-type doped SiC layer" has been replaced by: "said SiC with p-type dopant".

(b) line 3-4, "in the range from about 6 A to about" has been replaced by: "up to about".

**Claim 37:**

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(a) line 2: "said layer of n-type doped SiC, said n-type doped SiC layer" has been replaced by: "said SiC layer with n-type dopant, said SiC layer with n-type dopant".

(b) line 4, "in the range from about 6 Å to about" has been replaced by: "up to about".

(c) line 4, "the oxygen" has been replaced by: "an oxygen concentration".

**Claim 38:**

(a) line 2, "said n-type doped SiC layer" has been replaced by: "said SiC layer with n-type dopant".

(b) line 3, "in the range from about 6 Å to about" has been replaced by: "up to about".

**Claim 39:**

(a) line 6, "in the range from about 6 Å to about" has been replaced by: "up to about".

(b) line 6, "the oxygen" has been replaced by: "an oxygen concentration".

(c) line 10, "in the range from about 6 Å to about" has been replaced by: "up to about".

(d) line 10, "60 Å" has been replaced by "60 Å".

(e) line 11, "the oxygen" has been replaced by: "an oxygen concentration".

**Claim 40:**

(a) line 2, "said layer of p-type doped SiC, said p-type doped SiC layer" has been replaced by: "said SiC layer of p-type dopant, said SiC layer of p-type dopant".

(b) line 4, "in the range from about 6 Å to about" has been replaced by: "up to about".

(c) line 4, "60 Å" has been replaced by "60 Å".

(d) line 4, "the oxygen" has been replaced by: "an oxygen concentration".

**Claim 41:**

(a) line 2, "said layer of n-type doped SiC, said n-type doped SiC layer" has been replaced by: "said SiC layer of n-type dopant, said SiC layer of n-type dopant".

(b) line 4, "in the range from about 6 Å to about" has been replaced by: "up to about".

(c) line 4, "60 Å" has been replaced by "60 Å".

(d) line 4, "the oxygen" has been replaced by: "an oxygen concentration".

**Claim 60:**

(a) line 9, "in the range from about 6 Å to about" has been replaced by: "up to about".

(b) line 11, "the oxygen" has been replaced by: "an oxygen concentration".

END OF EXAMINER'S AMENDMENT

***Claims 29, 32-41 and 60 are allowed.***

The following is an examiner's statement of reasons for allowance:

Applicants' argument (see especially page 11 of Remarks filed 7/20/06) in traverse of the drawing objection is persuasive in that the technique relied upon (UHV-CVD, see e.g. Meyerson as referred to in the specification), although not having been applied by the prior art to the structures as claimed, is evidently successful in achieving abrupt change in C concentration over several interatomic distances, - although not necessarily over a single interatomic distance (the latter consideration has prompted the examiner's amendment on the thickness ranges). Furthermore, applicants' argument of traverse (pages 14-15 of Remarks) of the rejection, herewith included by reference, of claims 29, 32 and 60, i.e., that the required combination of Edmund and Swanson in substituting a single crystalline SiC layer for the SiC layer of Swanson does not have reasonable expectation of success when all parameters have to remain within the constraints as claimed, and thus is not obvious, is persuasive (see, in particular, comments in Remarks on page 13, first paragraph).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPM

September 26, 2006

Patent Examiner

A handwritten signature in black ink, appearing to read 'J. Mondt', is written over a horizontal line.

Johannes Mondt (Art Unit: 3663)